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primary element of structure, from which we deduce that its presence may often be a question of degree rather than a question of absolute fact.

As water distends, and finally ruptures and destroys, the white blood corpuscles, it is suggested that in surgical operations, much less harm would be done to the living tissues by washing or sponging them with, instead of water, a solution of about fifty-five grains of salt to the pint of water.

SPONTANEOUS GENERATION. — Dr. J. C. Dalton's very able lectures reviewing this subject, close with the reflection that now, as always, the idea of spontaneous generation is confined to those organisms of which we know least; obscurity commencing where our definite knowledge fails. Although such production would naturally exist, if at all, among the smallest and simplest organisms, still the imperfect organization of these minute forms may be only apparent, and there is every evidence that at least their regular and normal mode of production is from germs disseminated in the atmosphere. Hence they are to be regarded as cryptogamic vegetable organizations, with a definite place in the organic world.

NOTES.

At a meeting of the California Academy of Sciences, held June 5th, Mons. Octave Pavy, the Arctic explorer, was introduced by Dr. Stout, who also presented the letter of the American Geographical Society of New York, introducing and warmly commending the gentleman. Professor Davidson hoped to hear M. Pavy's views concerning the geography of the Polar regions. He announced that a great current, not marked on any of the charts, had been discovered off the northwest coast of the continent, and that only the present week he had received from Alaska complete confirmation of the discovery.

M. Pavy then addressed the Academy upon his projected expedition. He said he had no doubt of the existence of an Arctic passage from the Pacific to the Atlantic — though one that was of course impracticable for purposes of commerce. The speaker referred to the various expeditions from time to time sent out to explore the Polar regions. He said that since that of Sir John Ross, the routes of the expeditions had all been from the east of the American Continent. He (Pavy) was about to enter by a

passage hitherto untried. He believed that the Polar centre was an open sea in summer and winter, surrounded by a belt of ice, and that the great difficulty in reaching the Pole was the penetration of this belt. He believed this could be done by discovering the channel traversed by the warm ocean current from the South. There were six entrances to the Polar Basin—those eastward, between this continent, Greenland, Spitzbergen and Nova Zembla, were impracticable, because at a certain latitude powerful currents were encountered, sweeping down from the North and bringing ice with them, against which a ship could not be navigated. Through Behring's Strait, however, a warm current flowed to the North, and a clear passage through the ice-belt to the open sea must there be discovered. Dr. Kane had come to the conclusion that the ice-belt which had barred his progress in Smith's Sound, must have been the formation of not less than eighty years. All expeditions by the eastward had been stopped by impassable ice. The members of the Russian expedition, last year, had thought that they had reached the Polar Sea, but a comparison of their reckonings had shown that they had only entered a bight in the ice-belt created by the warmth of the Gulf Stream and already entered by navigators. The Gulf Stream, M. Pavy believed, sank as it expanded, and met the cold and heavy current from the North; but that it came to the surface again on reaching the Polar Sea; and retaining its heat unimpaired, maintained an open polar sea, and a moderate temperature at the Pole. In the latitude of 80° and southward of that, land birds were rarely known to stay, in consequence of the extreme cold; but they had been seen flying northward over the belt of ice; and in higher latitudes had been seen in great numbers. M. Pavy then traced on the chart the course which he intends to take. He said that passing through Behring's Strait he would take a direction to the northeast, reaching Wrangle's Land north of the coast of Siberia. This land he believed to be a continent stretching away toward the Pole, and reaching into the milder climate which he expected to find. In 1812 the Russian Government had started an expedition to explore Wrangle's Land. Several attempts were made to cross it by sleighing over the ice, but on each occasion they were baffled by the ice becoming thinner as they went farther north, until they came to open water. The great eastern ocean current, flowing upward through Behring's Strait, and rounding the shores of this

unexplored continent, Wrangle's Land, whirled eastward into the Polar basin. Then uniting with the waters of the Gulf Stream, the southern currents were formed which swept through the straits leading into Baffin's Bay and down upon the shores of Spitzbergen and Nova Zembla. The woods common to the shores of Siberia were found strewn upon the coasts of these islands, and confirmed the theory. A portion of the great Japan current branched off, M. Pavy said, to the south of Alaska, and produced the fine climate, enjoyed along this coast. Another evidence of an open polar sea, to the north of the ice-belt, was the fact that one species of whale, commonly passed northward at the approach of winter, seeking clear water and avoiding the perils of a frozen surface. M. Pavy said he expected to reach Wrangle's Land by the 1st of September, and would occupy the time from that date until May 1873, in crossing northward by means of sledges and dogs, over the continent, which he supposes Wrangle's Land to be. On reaching the open sea, he will abandon his sledges, turn his dogs loose, and launch the India rubber raft, which he takes with him, set sail, and steer for the axle of the earth. Having achieved the triumph of reaching it, he will shape his course by that of the great polar currents, and steer southeast for Cape Alexander, passing through Smith's Sound, down Baffin's Bay, and out into the Atlantic Ocean.

Professor Davidson opposed some of M. Pavy's theories. He said that he would as soon expect to find an ice-cream mountain in Africa as a warm Polar basin. He said that his own Arctic explorations had shown a different state of facts concerning the direction of the currents, than that assumed by M. Pavy. The Gulf Stream, he believed, flowed northward between the shores of Greenland, Spitzbergen and Nova Zembla, and, rounding the Polar Sea, flowed southward again through the straits leading into Baffin's Bay. He denied, also, that there was any reason to believe Wrangle's Land to be a continent. He cited instances in which the "false horizons" of northern latitudes, had caused erroneous observations to be taken by explorers. He considered the latest European charts of the Arctic regions, approached through Behring's Strait, erroneous in important particulars. He thought that M. Pavy would meet with more difficulties than he had anticipated. He said that M. Pavy had greatly over-estimated the magnitude and effect of the current as it passed through

Behring's Strait. "Knowing the size of a dog's throat it is easy to tell what he can swallow." Behring's Strait is twenty-five miles wide, and has an average depth of twenty-five fathoms. The rate of the current is from one and a half to three knots an hour. The current, therefore, must be of little account, and entirely inadequate to produce the effect attributed to it by M. Pavy. Still Professor Davidson felt sure that the expedition would result in great benefits to the cause of science, and he was only sorry that M. Pavy had decided to return by the Atlantic instead of by the Pacific.

[To show the diversity of opinion that exists in relation to this subject, we copy the following from the Proceedings of the Royal Geographical Society of April 22d, as given in "Nature."—Eds.]

"On Recent Explorations of the North Polar Region, by Captain Sherard Osborn, R. N. Captain Osborn commenced by alluding to his advocacy of a Polar Expedition *via* Smith Sound in 1865, and stated that the Duke of Somerset, then First Lord of the Admiralty, though apparently sufficiently favorable to the general proposal of a Government Expedition, urged upon him by a deputation from the Society who waited on him in that year, declined to assume the responsibility of recommending an expedition, owing to the difference of opinion which then reigned with regard to the best route to be followed. The alternate route to Smith Sound was that by the seas of Spitzbergen, advocated by Dr. Petermann and others, on the ground that the Gulf Stream, flowing in that direction, maintained an open sea to the Pole. He (Captain Osborn) and the promoters of the Expedition were content to wait the result of efforts made soon after by the Swedes and Germans to carry out the views of the German geographer. Seven years had elapsed, and we were now in a position to say that the advocates of the Spitzbergen route had been proved entirely wrong, whilst those who believed Smith Sound to be the best route were right. Captain Koldeway, who commanded both the German Expeditions, states, as the result of all his efforts, that "one can hardly resist the conviction that the hope of attaining the North Pole by ship, or of finding an open sea around the Pole, are alike among the most improbable of things. I confess that I myself was misled by representations in Dr. Petermann's 'Geographische Mittheilungen,' and held it to be at least possible by following a line of coast, to penetrate by ship far into the central Arctic region, and then certainly to make one's way to the Pole. A winter in East Greenland, the most careful observation of these mighty masses of ice, their movements and formation, and of the whole condition of temperature, have radically cured me, and all

my companions of this idea. . . . If the principal object be the nearest possible approach to the Pole, I am quite of Osborn's opinion that the best way appears to be through Smith Sound. Here one can penetrate to the 78th parallel, and then one has a continuous line of coast running north, which has been sighted as far as the 82nd parallel. Along this coast one would have to work one's way in spring with dog-sledges. I consider it a wild undertaking to penetrate towards the Pole by ship between Spitzbergen and Nova Zembla." No one could undo the effect of evidence so honest and conclusive as this. The Duke of Somerset rested his decision to delay action on the importance of first being furnished with the results of the Swedish Expedition then on its way to Spitzbergen. The Swedes during the last seven or eight years had sent no less than four expeditions to the verge of the Polar region; and the conclusion of their scientific leader, Von Nordenskiöld, is that in summer it is not possible to penetrate by ship through the pack, and that an open Polar Sea is a mere hypothesis destitute of foundation. The Swedish authorities further state that the only way to approach the Pole is that proposed by the English Arctic officers, of exploring on sledges in the spring. Here, then, are the results for which the First Lord of the Admiralty in 1865 desired to wait. After a review of the voyage of the Austrian Lieutenants Payer and Weyprecht last summer, in which they found open sea a little to the north and west of Nova Zembla, and which discovery is to be followed up by a second expedition in the present summer, Capt. Osborn concluded by an eloquent appeal to the English people not to allow the final laurels of Polar discovery to be wrung from them by the sailors or explorers of any other nation. In the discussion which followed, Dr. J. D. Hooker spoke of the important questions in the science of botany which a North Polar Expedition alone could elucidate; such as the extension nearer the Pole of fossil plants like those of Disco in Greenland, which indicate a former temperate climate in 70° north. Dr. Carpenter advocated a Polar Expedition as a necessary complement to the one the Government were about to dispatch to the Pacific to investigate the deep-sea ocean currents, and so forth. Accurate investigations of current-temperature, etc., of the Polar Ocean were of the highest importance to the right comprehension of the true theory of oceanic movements. Admiral Sir George Back stated that he entirely approved of the Smith Sound route as the one best to be adopted for a North Polar Expedition. Sir Leopold M'Clintock also spoke to similar effect. Admiral Richards explained the interest attaching to the completion of the geography of Greenland, which ought to be achieved by the English. He was strongly of opinion that a Government expedition, and by the English, was alone competent to finish the work of Arctic discovery. Mr. R. H. Scott read a letter from Von Nordenskiöld, in which he stated that a Swedish expedition would start for

Spitzbergen this summer, winter in the islands to the north, and attempt a journey towards the Pole in May, 1873, with reindeer-sledges.

THE HASSLER EXPEDITION.—Here we are north of the equator again. We arrived at this port on the 25th, all well. We have touched at many places along the western coast of South America. At Payta, the last place on the coast before going to the Galapagos Islands, a large collection was made considering the time we remained there, and among the fishes were two specimens, male and female, of a *Cestracion*; these we also found at the Galapagos. All the collections we had on board at that time were sent to New York by the U. S. S. *Ossipee* which sailed the same day we did. We left Payta on the 6th inst, sailing directly for Galapagos arriving there on the 10th inst. We anchored the first night in Post Office Bay, a little haven on the north side of Charles Island which is one of the most southern of the group. After leaving Charles Island, we stopped at Albermarle, James, Jervis and Indefatigable Islands, collecting more or less at every stopping place. Our collection at the Galapagos is very satisfactory, being very large, and includes, in fish, fifty-two species. We found in great quantities the two large species of *Amblarhynchus*, so accurately described in Darwin's "Voyage," etc., and obtained some thirty of each species. Some of the land species were three or four feet long and one weighed thirteen pounds. We have twenty-five birds' skins and many birds in alcohol, three seals' skins and a number of skulls. Jervis Island seemed to be quite an extensive seal rookery and we saw hundreds of land seals on the shore. They were very tame, thus giving us a favorable opportunity to study them. There was one family group on the beach which we looked at as long a time as we pleased, being only a few feet from them. The mother appeared not to be alarmed as long as we did not touch her two young ones: they were walking about on all fours like a dog, their hind and fore feet bent forward. We found inhabitants (seven persons) only on Charles Island, of those we visited, although other islands are inhabited. We left the Islands on the 19th, making nine days' stay.—J. HENRY BLAKE, *Panama*, June 30th. [Since the receipt of this letter, Count Pourtales has returned to Cambridge, and we understand that Professor Agassiz and other members of the Expedition will soon return home by the way of San Francisco.—Eds.]